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Analysis of Factors Affecting on Risk Management of Wheat Production Among Wheat Farmers (Razavieh Region, Khorasan-E-Razavi Province, Iran)

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Abstract

The main purpose of this study was to analyze the Factors Affecting on risk management in wheat production among farmers of Razavieh region (Khorasan-E-Razavi province, Iran). Statistical population of the study was 1520 farmers that they had water cultivation. By using of stratified proportional random sampling 156 respondents were selected from 8 villages. For the calculation of the risk-aversion coefficient degree among farmers, the Safety First Rule model was used. The findings revealed that the dominant respondents (65%) were risk-averse. The results of exploratory factorial analysis showed that five factors determined about 74.267 % from total variance for wheat farmers' risk management that consist of: economy & marketing management factor, planting management factor, harvest management factor, infrastructure management of farming and risk-sharing management factor. From among of the above mentioned factors, the most important factor of risk management in study region was factor of economy & marketing management.

Key words

Wheat farmers, Risk-aversion, Risk management, Drought, Agricultural extension.

Introduction

Agricultural production is characterized by risk. Each year Iranian farmers confront the sudden and untimely rainfalls, flood, chilblain and frost, hail, drought, vegetable pest and other natural disasters, and on the average they face with serious economic losses because of these incidents that are sometimes irreparable within the household economy of farmers. Beside these uncontrollable natural hazards, unnatural events such as fire, theft and so on should be added. Such factors are often unpredictable and they increase risk and lack of certainty of agricultural activities. Risk is an unavoidable factor in the business of agriculture. Production can vary widely from year to year due to unforeseen weather and market conditions, causing wide swings in commodity prices. But risk (while inevitable) is often manageable. Farming in Razavieh region in Khorasan-E-Razavi province, as an example of the agricultural area in Iran, is naturally considered as a risky activity by comparison with other occupations. Because drought, water shortage and unfavorable climatic factors such as hail occur largely there and these factors affect a lot the wheat farmer's decision and performance of agricultural activities (wheat is the dominant cultivation of Razavieh region). Therefore, recognition of the factors that have an influence on the risk management of wheat farmers' production can be considered as one of the main foundation in Razavieh region and other similar area in Iran. About the risk management of farm, Sandmo (1977) refers to the arrangement of input, output and determination of the best levels in combination of these two cases in the risk management .He points out that more price risk in the lower levels will be useful by the utilization of the input and output. In his opinion the final level of the input and output chosen by producers is variant for different people in the same condition.

Extensive researches have been done on the factors influencing wheat farmers' risk management in the different countries of the world; for example a research by Meuwissen et al. (2001) showed that in farmers' view, price and production risks are among the most important risks and production with the lowest possible expenditure and insurance

are the most important management strategies. But in a study by Sonkila (2005), changing agricultural policy is shown as the most important risk factors and protection of sufficient liquidity is shown as the most important risk management response. The results of a research by Falco and Perring (2005) showed that the most farmers' concern is about the price risk of goods, production risk and the changes of government's laws and regulations. In this study some farmers expressed that the cost of inputs is the greatest source of risk. They also declared that the maintenance of liquidity, use of secondary markets and insurance are the main risk management strategies.

In a study that was done by Akcaoz and Ozkan (2005), farmers are divided into three categories: risk-averse, risk-neutral and risk-taker. In risk-averse farmers' view the most important source of risk is the change of government's agricultural policies and the least important source of risk is the farmhands' hygienic problems. In their opinion the financial and security factor is the most important factor in risk management. In risk-neutral farmers' view, the most important source of risk is the change of the input and output's cost. Financial and security factor, out of farm investment and working outside the farm have been introduced as the most important factors influencing risk management, by risk-neutral farmers. Among the risk-taker farmers, the price changes of the inputs and the products are the most important source of risk and the relationships between families are the least important source of risk. In this study, the financial and the security factor, marketing and variety of income are the most important factors influencing risk-taker farmers' management of risk.

Moghaddasi and Yazdani (1997) in his research entitled "Studying the Factors of Risk: (a case study of Potatoin Feridan Isfahan)" reached the conclusion that the most farmers in this study are risk-averse. He also introduces the use of extensional curses in the utilization of new technologies such as pesticides, fertilizer and improved seeds as an important factor in the management of production risk. Finding of a research by Tyraei Yari (2002) which was about investigation of the personality factors affecting the risk-taking in the acceptance of crop insurance program, indicated that there is a significant positive relationship between the extent of farmers' risk-taking and the variables in agricultural work experience, the rate of land under cultivation, the total extent of agricultural lands, the amount of relationship with the extension experts, a close relationship and communication with the agricultural services centers. Also according to the results of step by step regression analysis, some variables could predict 23.9 percent of farmers' risk-taking changes. These variables consist of having non-agricultural jobs, private-leasing mixed exploitation system, credit and social status of people in front of others, the ability to tolerate failure and to be influenced by others.

Rostami et al. (2005), in their study entitled "risk management of wheat production in domestic beneficiary system (the case study: Harsin region in Kermanshah province" concluded that the existence of five major risk factors (pests and diseases, climatic and environmental factors, factor of input, factor of lack security and factor of economic-credit) in wheat production have been effective on the study area. Also the results of risk management factorial analysis revealed that there are five factors in the risk management (risk-sharing management, water and soil management, cultivation management, harvest management and marketing management) for reducing the above-mentioned risks. Ultimately the results of factorial analysis sector revealed following correlations: positive significant correlation between risk-sharing management and these five factors (pests and diseases, climatic and environmental factors, input factor, lack of security factor and economic-credit factor), positive significant correlation between water and soil management and these two factors (pests and diseases, climatic and environmental factors), positive significant correlation between harvest management and factor of pests and diseases, positive significant correlation between marketing management and these three factors (factor of lack of security, factor of economic-credit and factor of input).

Roosta et al. (2010) investigated the factors affecting the capability of farmers in risk management among Wheat Producers in Khorasan-E-Razavi Province. The results this study indicated that most threatening risks in wheat production were either natural or of economic nature and the most important strategies taken to confront them were either technological or financial ones. Correlational analysis revealed that there were significant relationships between a farmers' capability in risk management and his educational standing, his attitude towards risk, crop yield per unit land, level of land under wheat cultivation, total area of the cropping land, wheat marketing value, frequency and extent of consultation with agricultural experts and TV programs. So the main aim of this study was the analyze of the effective factors on risk management among the wheat farmers in the Razavieh region of Khorasan-E-Razavi (Iran); and the special objectives of this study consist of the following:

Description of the personal and professional characteristics of respondents,

- determination of the degree of respondents' risk-aversion;
- Ranking amount of the use of risk management methods in wheat production, among the respondents;
- Determination of explanatory factors in wheat production management, among the respondents.

Material and methods

This study in terms of purpose was applied, in terms of the extent and the control degree of variables was a field-work and in terms of the collecting data method was a descriptive-correlation research which was designed and conducted in Iran (Razavieh region in Khorasan-E-Razavi province).

Statistical population of the study was 1520 persons that included all wheat farmers of Razavieh region that they had water cultivation. By using of stratified proportional random sampling and Cochran formula, 156 respondents were selected from 8 villages and for data collection, used of interview method. Razavieh region of Mashhad city consisted of 75 villages that this first, eight index villages were selected by dividing the Razavieh region into four parts: south, north, west and east parts. In the next stage, the respondents were chosen and studied randomly from each village in proportion to the wheat farmers' population. The research tool was a questionnaire includes 63 items that 12 questions are about individual features; 19 questions are about factors that determine the risk-aversion and 24 questions were about the wheat farmers' opinion of the relationship with the extent of the variant methods use in the risk management of the wheat production in the region. Deliberate items and independent variables of the study were compiled in a series of regular expressions, with a specific order and equal rhythm on a Likert scale of none to very high range (score 0 to 5). Other items (8 items) because of other purposes were presented open and two-dimensional in the questionnaire.

Considering that some parts of the questionnaire, according to the research topic, included some new questions that required explanation to the wheat farmers. So in order to complete each questionnaire, the interview method were used to be sure that there was no ambiguity for the wheat farmers. To determine the validity of the questionnaire first 30 questionnaires were handed out among the wheat farmers who were out of the sample study and validity of the questionnaire indices were found by using of Cronbach-Alpha coefficient, higher than 0.7, that was a reason for suitability of the research's material. The face validity of the questionnaire was confirmed by a panel of faculty members of agricultural extension and education and agricultural experts of region. To measure the effect of risk willingness on famers' decision and determination of the risk-aversion degree in output production, the Safety First Rule model were used. This model is one of the rules that discuses in relation to risk willingness of the wheat farmers. According to this rule, the beneficiaries take actions to choose a technology and apply it in the production of input just when they feel comfortable and have confidence on providing their own living needs. Randhir (1997), Parikh & Bernard (1988), Sekar & Ramasamy (2001), Rostami (2004) and Ajetomobi & Binuomote (2006) used this method in their surveys in order to determine the risk-aversion degree of farmers.

In this model:

- $R_j = [E^*_j - E_j]/[S_j]; \quad j = 1, 2\ldots, n$
- R_j: Risk-aversion degree of wheat farmer (j)
- E^*_j: Critical income level of wheat farmer (j)
- E_j: Expected income of wheat farmer (j)
- S_j: The standard deviation of the wheat farmer (j)'s annual income (in the past three years of agricultural and non-agricultural sites)

The standard deviation of the household's income were obtained according to the household's approximate income from agriculture and non-agricultural sites in the past three years (data extract from formal documents of Agri-Jihad organization in region). The reason of selecting these three years was avoiding from the standard deviation obliquity as a result of the respondents' forgetfulness.

- E* = 152950 (FAM - CHI / 2) + DPT – (UAR +UAR')
- E = VP (1 + DMG) – TC

The weighted crop damage variable was defined as:

$DMG = (\sum K_i DMG_i)/\sum Ki$

DMG is the weighted crop damage variable. This was obtained by enquiring how much they perceived to have lost due to the adversity by giving prices of the crops as weightages (Ki) (Sekar and Ramasamy, 2001). In other hand, it is believed that regression weights will show the relative importance of the crop damage variable. It is the shadow value of yield loss, and the weighted crop damage would yield unexpected total damage for

each farm (Parikh and Bernard, 1988). The parts of the above-mentioned formulas are as the following:

- 152950: The per capita cost of supplying the least calorie supply in one year (The standard rate in Iran).
- FAM: The user household size.
- CHI: Number of children (at least active members of the family in the work of agricultural).
- DPT: The amount of farmer's debt to formal and informal institutions in terms of Rial (The unit of Iranian currency).
- UAR: The beneficiaries' annual income from sites other than farmlands in terms of Rial.
- UAR': The beneficiaries' annual income from sites that was based on non-agricultural sites in terms of Rial.
- VP: Total value of wheat production in terms of Rial.
- DMG: The proportion of farmer's damage due to losses and abnormal incidents as a weighted average.
- TC: Total wheat production cost in terms of Rial (in the same year).
- The risk-aversion coefficient degree calculated in this study (table 1) is between -1 to +1 which is as the following:

$0.1 \leq R_j \leq 1$	$-0.1 \leq R_j \leq 0.1$	$-1 \leq R_j \leq -0.1$
farmer of risk-taker	farmer of risk--neutral	farmer of risk--averse

Table 1: Exposition of risk-aversion coefficient degree.

Findings

Personal and professional characteristics of the respondents

The most age frequency of the respondents was (43 percent) between 51 to 60 years old. With a view to the gender of the respondents, 84.5 percent were men and 15.5 percent were women. The most Literacy rate frequency of the wheat farmers were secondary education level and they were 33 percent of the sample and also 21 percent of wheat farmers were illiterate and only 9 percent of statistical community had a degree higher than diploma. The most experience of wheat cultivation among the respondents was between 21 to 30 years and in view of the marital status 83.3 percent of respondents were married and the others were single. The most frequency of duration of familiarity with the extension services was between 5 to 10 years and on the average more than 83 percent of respondents went to the extension services centers fewer than six times annually. Also, with a view to the extent of farmlands, the highest frequency was related to the farmers who had 4 to 7 hectare. The most experience of farming among the respondents were 31-40 years. The average amounts of farmlands were 1.14 hectare.

Risk-aversion degree of respondents

In the table (2), risk-aversion coefficient degree (Rj) was calculated according to the Safety First Rule model. Based on the findings, 65 percent of the respondents in the study were risk-averse, 27 percent were risk-neutral and 8 percent were risk-taker. It seems, recent droughts happened in the past few years have had a direct impact in the risk-aversion nature of the most farmers.

Risk- aversion coefficient	Status of wheat farmers	Frequency	percent
$0.1 \leq R_j \leq 1$	Risk-taker	12	**8**
$-0.1 \leq R_j \leq 0.1$	Risk-neutral	43	**27**
$-1 \leq R_j \leq -0.1$	Risk-averse	101	**65**
Total	-	**156**	**100**

Table 2: Status of the respondents, by the risk- aversion coefficient.

Analysis of correlation between the respondents' individual, farming and economic variables with risk-aversion coefficient

To determine the correlation between independent variables of the study and the wheat farmers' risk-aversion coefficient variable, the Pearson and Spearman correlation coefficients were used. According to the results of table)3(, there was a significant positive correlation between age variables and agricultural experience with risk-aversion coefficient degree in significant level of 1 percent. There was a significant negative correlation between literacy level and the amount of insured lands with risk-aversion coefficient degree in significant level of 1 percent. Also, there was a significant negative correlation between the agricultural annual income, number of agricultural equipments ownership, familiarity with extension services, number of going to the agricultural service centers in month, amount of leasehold lands, total amount of farming lands and amount of under wheat cultivation lands with the risk-aversion coefficient degree in significant level of 5 percent. But there was no significant correlation between number of children variables, amount of private lands, amount of participative lands, amount of lands that should

be shared with others, Total amount of wheat production in the current year, total amount of wheat sale in the current year with the risk-aversion coefficient degree.

The frequency Distribution of the risk management methods in wheat production among the respondents

The mean was used for ranking of factors, to obtain the priority of the different methods in the management of wheat production risks by the respondents in the region. According to the results of Table (4), sale of product to the agents and Short sale of product in the respondents are first and second priorities compared with the use of other methods in management of wheat production risk in the region. But, the amount of applying biological fights against the pests and using of under pressure watering systems were in the last priorities.

The results showed that the items that have earned the highest ranks highlighted the higher priority risks of financial and marketing for farmers in the region of study. Considering lack of proper organization in the market for sale of wheat products in the region, it seems that farmer's financial security has been affected more than the other indicators of risk management. But, the fact that items that have the lowest ranks suggest the poor educational indicators in relation to these in the region exist.

Factorial Analysis of effective factors on the risk management of wheat production among the respondents. The appointed variables were put in the Factor Analysis in order to determine the understanding condition of the wheat production risk among the wheat farmers. The factorial analysis was used to decrease the study variables to fewer factors and to determine the portion of each factor. According to table (5), the amount of KMO was 0.725 and it revealed that the condition of data was appropriate for the factorial analysis. Also the amount of Bartlett's test was equal to 1029.250 that was significant in level of 1 percent. Therefore, data were suitable for factorial analysis.

Variables	Type of correlation coefficients	Amount of correlation coefficients	Sig.
- Age (years)	Pearson correlation	0.386**	0.001
- literacy level	Spearman correlation	-0.512**	0.00
- Annual agricultural income (in Rial)	Pearson correlation	-0.241*	0.022
- Number of children	Pearson correlation	0.156	0.352
- Number of agricultural equipments ownership	Pearson correlation	-0.220*	0.033
- Agricultural experience (years)	Pearson correlation	0.435**	0.00
- Amount of familiarity with extension services	Pearson correlation	-0.311*	0.031
- Number of going to agricultural service centers (monthly)	Pearson correlation	-0.187*	0.011
- Amount of private lands (in hectares)	Pearson correlation	0.443	0.431
- Amount of leasehold Lands (in hectares)	Pearson correlation	-0.317*	0.041
- Amount of participative lands (in hectares)	Pearson correlation	0.154	0.342
- Amount of lands that should be shared with others (in hectares)	Pearson correlation	-0.353*	0.124
- Total amount of farming lands (in hectares)	Pearson correlation	-0.191*	0.020
- Amount of under wheat cultivation (in hectares)	Pearson correlation	-0.246*	0.015
- Amount of insured lands (in hectares)	Pearson correlation	-0.477**	0.00
- Total amount of wheat production in the current year (in hectares)	Pearson correlation	0.654	0.466
- Total amount of wheat sale in the current year (in Rial)	Pearson correlation	0.435	0.146

Table 3: Correlation coefficients between individual variables and the respondents' risk-aversion coefficient degree.

Risk factors	Amount of using different methods in risk management of wheat production											
	Very rarely		Rarely		Occasionally		frequently		Very frequently		Mean	Rank
	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent		
Sale of product to the agents	0	0	0	0	2	1	16	10	138	89	4.73	1
Short sale of product	0	0	0	0	12	8	11	7	133	85	4.66	2
Use of drought resistant varieties	0	0	0	0	12	8	24	15	120	77	4.49	3
Planting of varieties with short growing period	0	0	16	10	0	0	34	22	106	67	4.26	4
Use of appropriate fertilizers to increase soil fertility	11	7	8	5	10	6	3	2	124	80	4.21	5
Observing crop rotation	0	0	0	0	29	19	38	24	89	57	4.10	6
Use of modified seeds	8	5	10	16	15	10	45	29	78	50	4.03	7
Use of governmental												
Loans	21	13	0	0	12	8	63	41	60	38	3.68	8
Use of appropriate pesticides to fight with pests	0	0	6	3	45	29	29	19	76	49	3.55	9
Use of appropriate herbicides to fight with weeds	0	0	24	15	32	20	44	29	56	36	3.45	10
Sale of product to cooperatives	0	0	25	16	34	22	38	24	59	38	3.27	11
Making of planting diversity	21	13	23	15	60	38	12	8	40	26	3.23	12
Participating in the extension classes	8	5	29	19	38	24	40	26	41	26	3.21	13
Action to leveling the under cultivation lands	24	16	2	1	51	31	34	22	45	30	3.14	14
Action to drainaging under cultivation watery lands	45	29	20	13	21	13	29	19	41	26	3.12	15
Insuring the crop	3	2	76	48	40	26	0	0	37	24	3.08	16
Use of non- governmental loans	24	15	33	21	0	0	56	36	43	28	2.76	17
Cultivation of wheat in different parts with a view to fertility	11	7	34	22	45	29	43	28	23	14	2.64	18
Use of Zinc Phosphate (Rodentiocide) to fight against rodents	78	50	33	21	24	16	11	7	10	6	2.43	19
Participatory cultivation	69	44	33	21	34	22	20	13	0	0	2.23	20
Use of disinfected and sifted seeds	15	10	88	56	53	34	0	0	0	0	2.15	21
Use of windbreak to prevent from stem lodging	70	45	0	0	37	24	33	21	16	10	1.98	22
Saving (having liquidity)	77	49	33	21	23	15	11	7	12	8	1.95	23
Use of under pressure watering systems	111	72	10	6	5	3	13	8	17	11	1.77	24
Biological fight against the pests	120	77	24	15	12	8	0	0	0	0	1.58	25

Table 4: Frequency distribution of the risk management of wheat production methods among the respondents.

To determine the number of factors in this study based on the Kaiser Criteria, just factors were accepted that their eigenvalues were larger than one. So, five factors were extracted that their eigenvalues were larger than one. In table (6), there are the number of extracted factors associated with their eigenvalues, the variance percentage of each factor and the cumulative frequency of variance percent.

In the next step, the factors were rotated by the Varimax method, and the variables related to each factor were identified, and finally the obtained factors were named that are perceived in the table (7). Generally, all the five mentioned factors have been able to explain 74.268 percent of total variance of the variables. The five factors including economic and marketing management, planting management, harvest management, infrastructure management of farming and risk-sharing management. Also, According to the results of the table 6 (the percentage of variance), the first factor is the most important effective factor.

KMO	Bartlett's Test	
	Coefficient of Bartlett test	Sig.
0.725	1029.250	0.00

Table 5: The amount of KMO and Bartlett's Test results.

Component	Eigenvalues	% of Variance	Cumulative %
1	4.812	21.314	21.314
2	3.371	19.515	40.829
3	3.218	16.243	57.072
4	1.575	9.643	66.715
5	4.831	7.553	74.268

Table 6: Factors from factorial analysis of risk management in the wheat production among the respondents.

Factor	Variables	Factor loading
Economy & marketing management	Short sale of product	0.895
	Sale of product to the agents	0.864
	Sale of product to cooperatives	0.738
	Use of governmental loans	0.683
	Use of non-governmental loans	0.663
Planting management	Use of drought resistant varieties	0. 874
	Planting of varieties with short growing period	0.741
	Use of modified seeds	0.691
	Use of disinfected and sifted seeds	0.641
Harvest management	Use of appropriate fertilizers to increase soil fertility	0.769
	Use of appropriate herbicides to fight with weeds	0.757
	Use of appropriate pesticides to fight with the pests	0.698
	Use of Windbreak to prevent from stem lodging	0.675
	-Use of Zinc phosphate (Rodentiocide) to fight with rodents	0.638
infrastructure management of farming	Observing crop rotation	0.736
	Use of cultivation diversity	0.727
	Action to drainaging under cultivation watery lands	0.603
	Action to leveling the under cultivation lands	0.579
Risk-sharing management	Insuring the crop	0.762
	Participating in the extension classes	0.652
	Participatory cultivation	0.523

Table 7: Specifications of extracted factors, by factorial analysis.

Conclusions

This study was about the analysis of factors affecting wheat production risk management among the wheat farmers in Razavieh region of Khorasan-E-Razavi province. Results of calculating the coefficient degree of risk-aversion were indicated that the most of wheat farmers (65 percent) were risk-averse. It seems that, according to the recent droughts and numerous psychological and financial damages, most wheat farmers in the region are averse to accept risk conditions and prefer to be careful and conservative in the cultural activities. Under such circumstances, investigation of the psychological causes of risk-aversion and the solutions to adjust them in the region and the compilation of executive directions in order to present a guaranty that support the wheat farmers in confronting with drought and economic critical conditions and a comprehensive use of crop products insurance in the region.

Results of correlation analysis between the independent variables in the study and the amount of wheat farmers' risk- aversion indicated that the younger wheat farmers who had more income, farmlands and higher literacy rate are more ready to accept more risk factors and implementing programs related to risk management. Also, wheat farmers with more rentable lands were looking for a way to get the maximum benefit and are ready to accept risks. Provided that farmers with more agricultural experience have more risk-aversion. It is necessary to, mention that the familiarity with the agricultural extension services was effective on the acceptance of wheat production risks. According to farmers with insuring land accept more risks for wheat cultivation activities, it seems that the planning of the agricultural extension services center in region for promote agricultural awareness and give more cognation had a necessity as compared with the benefits of insuring wheat product. The risk-aversion of wheat farmers in the study, revealed the necessity of holding extension classes and other extension methods in order to improve the wheat farmers' positive view to accept technologies that need wheat production risks.

According to the results of factorial analysis, factors that determine the risk management of wheat production risk among the wheat farmers were summarized in five factors including economic and marketing management, planting management, harvest management, infrastructure management of farming and risk-sharing management that explained 74.268 percent of effective factors on the risk management of wheat production among the wheat farmers. The economic and marketing management factor in the wheat production is the most important factors among the above-mentioned factors. Therefore, it is proper to pay attention to the composition of agricultural extension plans by the deliberate marketing extension methods of wheat production sale in the region and to be done by the assist of agricultural extension services center in order to compensate some parts of wheat production risks in the region.

Therefore, there are some effective suggestions in order to promotion of risk management of wheat production among the wheat farmers including: the development of appropriate agricultural technologies, decreasing risks, strengthening governmental supports from the aspect of credits and loans, allocation of supportive subsidization to the poor wheat farmers, correction of administrative and legal process of having loan by the wheat farmers, reinforcement and supporting of cultural products insurance case in the wheat cultivation, purposeful leading the training of the wheat controllers in the region about the risk management, methods for preventing and controlling them, and also paying attention to the awareness programs of wheat farmers in the region related to the insuring farmlands.

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References

[1] Ajetomobi J.O. & Binuomote S.O. (2006). Risk Aversion among Poultry Egg Producers in Southwestern Nigeria. International Journal of Poultry Science, Vol. 5, No. 6, pp. 562-565.

[2] Akcaoz, H., & Ozkan, B. (2005). Determining risk sources and strategies among farmers of contrasting risk awareness: A case study for Cukurova region of Turkey. Journal of Arid Environments, Vol. 62, No. 4, PP. 661-675.

[3] Falco, S. D., & Perrings, C. (2005). Crop biodiversity, risk management and the implications of agricultural assistance. Ecological Economics, No. 55, pp. 459-466.

[4] Meuwissen, M., Huirne, R., & Hardaker, J. B. (2001). Risk and risk management: an empirical analysis of Dutch livestock farmers. Livestock Production Science, No. 69, pp. 43-53.

[5] Moghadasi R., & Yazdani, S. (1997). Studying the Factors of Risk: (a case study of Potatoin Feridan Isfahan). Journal of Agricultural Economics and Development. Vol. 4, No. 2, pp. 45-58.

[6] Parikh, A., & Bernard, A. (1988). Impact of risk on HYV adoption in Bangladesh, Agricultural Economics, Blackwell, October, Vol. 2, No. 2, pp. 167-178.

[7] Randhir, T. (1991). Influence of Risk on input use in south Indian tanked fakes, Indian journal of agricultural economics, Juan and March, Vol. 46, No. 1, pp. 52-83.

[8] Roosta, K., Hoseini, F., Chizari, S. M., & Hoseini. M. (2010). A Study of Factors that Affect the Capability of Farmers in Risk Management (Case Study: Wheat Producers in Khorasan-E-Razavi Province). Iranian journal of Economics of Agricultural Research and Development. Vol. 40-2, No. 3, pp. 129-144.

[9] Rostami, F., Shabanali Fami, H., Movahhed Mohammadi, H., & Irvani, H. (2005). Risk management of wheat production in domestic beneficiary system (the case study: Harsin region in Kermanshah province). Journal of Iranian agricultural science, Vol. 37-2, No. 1, pp. 93-106.

[10] Rostami, F. (2004). Risk management of wheat production in domestic beneficiary system. Thesis of M.Sc. in rural development field, College of agricultural economics and development, Iran, Tehran University.

[11] Sandmo, A. (1977). On the Theory of the Competitive firm under price uncertainty, the American Economic Review, Published by: American Economic Association, Vol. 61, No. 1, pp. 65-73.

[12] Sekar, I., & Ramasamy, C. (2001). Risk and Resource Analysis of Rainfed Tanks in South India. Journal of Social and Economic Development. No. 3, pp. 208-215.

[13] Sonkila, S. (2005). Farmers' Decision – Making on Adjustment into the EU. Helsinki: USA. Manual report. pp. 56-77.

[14] Tyraei Yari, N. (2002). Personality factors influencing risk insurance plans accepted postulates in agricultural products by beneficiaries of Khozestan province (Iran). Thesis of M.Sc. in agricultural extension and education field. Department of Agricultural Extension and Education, Tarbiat Modarres University.